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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,409	11/24/2003	Feng Chen	CS 03-039	5057
30402	7590	11/04/2005	EXAMINER	
WILLIAM STOFFEL PMB 455 1735 MARKET ST. - STE. A PHILADELPHIA, PA 19103-7502			SHAKERI, HADI	
			ART UNIT	PAPER NUMBER
			3723	

DATE MAILED: 11/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/720,409	<b>Applicant(s)</b> CHEN ET AL.	
	<b>Examiner</b> Hadi Shakeri	<b>Art Unit</b> 3723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,5,7-10,12-15,19 and 21-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,5,7-10,12-15,19 and 21-36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All   b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. ____.  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____.   | 6) <input type="checkbox"/> Other: ____.                                    |

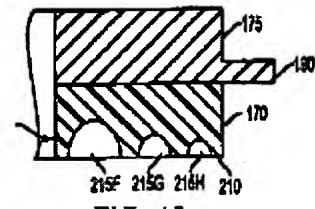
## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1, 5, 9, 12, 13, 14, 15, 19, 22-24, 26, 30-32, 34 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kajiwara et al.

Kajiwara et al. discloses all of the limitations of claims 1, 14 and 30, i.e., a CMP retaining ring having at least one annular and radial groove on a lower side of the ring extending from an inner to an outer periphery with at least one portion of the annular groove having a rounded contour or slanted contour and further disclosing that radial grooves, except for disclosing a flat bottom. Kajiwara et al. discloses, e.g., 09:50-54 or 09:61-63 that the shape and size of the groove may be changed to accommodate different properties of the pad and/or to reduce the rebound effect, it further discloses the preferred embodiment of the instant application, i.e., Figs. 3B, 3C (instant application page 13, lines 7 and 8). It would have been obvious to one of ordinary skill in the art to modify the shape by providing a flat bottom to accommodate different polishing pads.



Regarding flat sidewall, Kajiwara et al. as modified above i.e., changing shapes to accommodate different pads meets the limitations and further since it has been held that changing shape, dependent on work-piece parameters, involves only routine skill in the art. *In re Stevens*, 101 US PQ 284(CCPA1954).

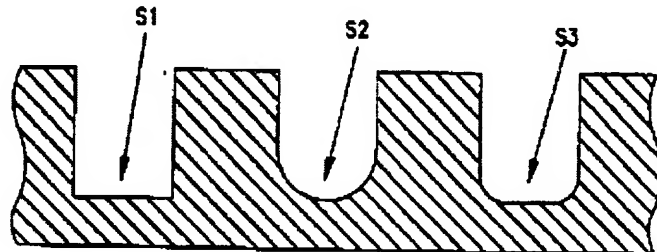
Modification with regards to particular size is considered obvious to one of ordinary skill in the art as indicated in the previous office action.

With regards to curved sidewall and slanted sidewall, embodiments wherein the dimension varies from the inlet to the outlets, meets the limitations.

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3. Claims 1, 5, 9, 12, 13, 14, 15, 19, 22-24, 26, 30-32, 34 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kajiwara et al. in view of Chen et al. (6,656,019).

Kajiwara et al. meets all of the limitations of the above claims, except for disclosing a flat bottom. Chen et al. teaches groove for delivering slurry of



varying shapes. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the invention of Kajiwara et al. with different shapes, i.e., S3 as taught by Taylor to avoid accumulation of debris (Chen et al. 10:08-13).

Regarding curved and slanted sidewalls, Kajiwara et al. as modified by Chen et al., meets all the limitations, embodiments disclosed in Kajiwara et al., however, as indicated above it has been held that changing shape, dependent on work-piece parameters, involves only routine skill in the art. *In re Stevens*, 101 US PQ 284(CCPA1954). And further It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the sidewall curved to enhance prevention of accumulation, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Modification with regards to particular size is considered obvious to one of ordinary skill in the art as indicated in the pervious office action.

4. Claims 7, 10, 12, 21, 25, 27-29, 33 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Prior Art (modified Kajiwara et al. alone and/or in view of Chen et al.) as applied to claims 1 and 14 above, and further in view of Taylor (6,869,335).

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Prior Art as described in sections 2 and 3 meets all of the limitations of the above claims, except for disclosing a rounded top corner (corners contacting the pad).

Taylor teaches that the corners of the grooves contacting the pad can be beveled or rounded. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the invention Prior Art with semicircular profiles as taught by Taylor to avoid excessive wear of the pad (Taylor 05:32-34).

Regarding claims 3, 7 and 20, Kajiwara et al. as modified by Taylor meets the limitations, e.g., rounded top corner.

Regarding claims 11 and 12, Kajiwara et al. as modified by Taylor meets the limitations, i.e., rounded top corner for the embodiments of Fig. 10B.

### ***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

***Response to Arguments***

6. Applicant's arguments with respect to claims 1, 2, 4-6, 8-10, 13-20 and 22 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments filed 08/30/05, with respect to claims 3, 7, 11, 12 and 21 have been fully considered but they are not persuasive. The argument that the combination of Kajiwara and Taylor is improper since solves the same problem and thus is hindsight is not persuasive. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, both patents are concerned with retaining rings having grooves to deliver slurry to the workpiece, and Taylor clearly teaches reducing pad wear by rounding the corners of the grooves on the retaining ring.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hadi Shakeri whose telephone number is 571-272-4495. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph J. Hail, III can be reached on 571-272-4485. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Hadi Shakeri', with a stylized flourish at the end.

Hadi Shakeri  
Primary Examiner  
Art Unit 3723

hs  
November 3, 2005